and since his arguments, contained in papers which form the basis of the work before us, have so recently been under discussion, it is unnecessary here to deal with them in detail. Suffice it to remark that he sets out with a desire to explain the origin of a fauna (that of Ireland in particular) by the careful study of its past and present facies. Discussing the theories of northern and southern migration, and of the migration of the bulk of the original European fauna on land, he upholds the view that the present fauna and flora reached Ireland in a continuous stream from early Tertiary times onwards, and that many of its existing species have probably been there since the Eocene. He argues that little or nothing arrived after the earlier part of the Pleistocene—*i. e.* practically nothing since the Glacial Period.

He incidentally supports the theory of marine origin of the Boulder Clay, and materially so the argument in favour of ice-action in N. Europe being due to floating icebergs at sea, as distinct from land-ice; leading up to the final conclusion that Ireland became separated from England when the migrations from S. to Central Europe were in progress, and that the bulk of the animals which now inhabit England and Ireland are the descendants of ancestors which must have migrated over a land-surface not covered by ice.

The book is admirably got up, not its least attractive feature being the illustrations, which, though few, are in some cases new and highly welcome. Its weakest aspect appears to us the too great reliance on mere negative evidence, notoriously on the supposed scantiness of fossils in the Oligocene deposits, which for Ireland have yet to be adequately explored.

In questions of synonymy, there are some concerning which the author is by no means in agreement with precedent and prevailing custom, and its a pity he is not more of a palæontologist. The general tone of the book is healthy in the extreme, well worthy its author's association with Haddon, Cunningham, and others, who are doing so much for natural science in the Green Isle. All things considered, the question whether the Irish fauna be glacial, pre- or post-glacial, is but of secondary importance in the production of the book. It is its author's great merit to have opened up a new line of thought on an important problem and worked it out at great pains. That his book will exercise a stimulating influence on Irish investigation is certain; and we could wish it no better outcome than that it might lead to an early exploration of the later and post-tertiary deposits of the area with which it deals, upon the evidence obtainable from which much that is advocated in its pages must stand or fall.

On Buds and Stipules. By the Right Hon. Sir John Lubbock, Bart., M.P., F.R.S., D.C.L., LL.D. With Four Coloured Plates and 340 Figures in the Text. (International Scientific Series, vol. lxxxvi.) London: Kegan Paul, Trench, Trübner, & Co., Ltd. 1899. 8vo. Pp. xix, 233.

This volume consists of selections from three papers—"On Stipules, their Forms and Functions," and "On Buds and Stipules"—which

originally appeared in the 'Journal of the Linnean Society' from 1891 to 1897, with the cuts and the coloured plates belonging to them; there are also added a few cuts from the author's 'Seedlings,' half a dozen from Bentham's 'Illustrated British Flora,' and some new half-tone blocks.

The scope of the work will be best understood by the titles of the contents of the nine chapters into which the book is divided:—On Buds; On Stipules; On the Development of Leaves and Stipules; On the Protection of Buds; On the Structure of Buds; On the Forms of Stipules; On the Subsidiary Uses of Stipules; On the Nature of Stipules; Summary.

It is somewhat difficult to guess the class of readers to whom this volume is addressed. While the style is simple and the various topics discussed without undue technicality, demands are made upon the reader's knowledge which are hardly likely to be met in the case of the average person. On the other hand, the nature of much of the information given may without offence be styled elementary; the subjects are introduced as they occur, without a strict sequence in any scientific order. The references and bibliography point to the conclusion that students are appealed to, and we must therefore conclude that both classes are addressed and that the volume is a compromise in that direction.

The forms of both buds and stipules are so various that it would be difficult to write on them without bringing together a large amount of interesting matter. It is so here, and the volume may be recommended to all who can take pleasure in examining the objects named on attention being drawn to the protean shapes in which the said organs occur. To enhance the interest of a stroll in the country or garden is well worth doing, and on that ground the present work may be commended.

A word may be added on the subject of references, which are sometimes given in the text, at others in footnotes, while a third method is also employed, that of sending the reader to the "Bibliography," consisting of rather more than two pages of titles of books and papers bearing on the topics handled. Unfortunately, as we think, the plan adopted is the singularly awkward one of setting out the entries in the order of citation in the text, as though the author drew up his list as he wrote his manuscript and printed it in the same sequence. To render the bibliography really useful it should have been drawn up either in the order of time—that is, chronologically—which would have shown the order of research from the first author mentioned to the last, or alphabetically by writers' names, which would have shown the relative sum of observation by each author named. By the present plan we have a series of entries without any obvious plan, compelling the reading of the whole in order to get at the items.